

**REMARKS**

As a preliminary, Applicant and Applicant's representative thank the Examiner for the interview of July 8, 2009.

By the present amendment, claim 1 has been amended to clarify:

- first set of lines and second set of lines are in accurate registration with each other (as described, for example, on page 5, lines 29-32)
- first set of lines is visible and second set of lines is not visible observed in reflected light from the front side, and second set of lines is visible and first set of lines is not visible observed in reflected light from the reverse side, both sets of lines visible observed in transmitted light from any of the front side and the reverse side (as described, for example, on page 3, lines 5-13, page 5, lines 20-23, 32-35, and page 6, lines 1-3: it is immediately derived that an inauthentic jumbled image is not visible in reflected light since authentication method requires holding the document up to the light, i.e. a comparison between reflected light observation and transmitted light observation)
- 3D effect that is a relief or volume effect is created by the planar arrangement of the first and second sets of lines observed in accurate registration in transmitted light (as described, for example, on page 5, lines 37-39: it is inherent that volume effect is a result of planar arrangement because observation is in accurate registration, also immediately derived from page 4, lines 4-6 that volume effect results from planar arrangement of lines since one embodiment of sets of lines has identical, superposed sets of lines on each side)

- 3D effect would not be present if the first and second sets of lines were not in accurate registration, so as to identify an authentic security document by the accurate registration (as described, for example, on page 6, lines 1-5: this is immediately derived from the authentication method)

Claim 15 has been amended to correct a typographical error.

Claims 28-31 have been amended to replace clauses introduced by “when observed...” by a more direct recitation “observed...”

Claims 1-3, 5-8, 11-12, 15-17, and 22-31 are pending in the present application. Claim 1 is the only independent claim.

#### Typographical error

In the Office Action, a typographical error is noted in claim 15 (comma before period at the end).

The typographical error has been corrected. Accordingly, it is submitted that the objection should be withdrawn.

#### Art rejections

In the Office Action, the following rejections are made:

- Claims 1-3, 5, 7-8, 11, 15, 17, and 22-27 are rejected under 35 U.S.C. 102(b) as anticipated by CA 23335239 (“Zeiter”).
- Claims 23-24 and 26-27 are rejected under 35 U.S.C. 103(a) as obvious over Zeiter in view of US 5,857,709 to Mallol et al. (“Mallol patent”).

- Claims 28-31 are rejected under 35 U.S.C. 103(a) as obvious over Zeiter in view of US 2001/0018113 to Mallol et al. (“Mallol publication”).
- Claims 1-3, 5-8, 11-12, 15-17, and 22-31 are rejected under 35 U.S.C. 103(a) as obvious over US 5,449,200 to Andric et al. (“Andric”) in view of Zeiter and the Mallol publication.
- Claims 12 and 16 are rejected under 35 U.S.C. 103(a) as obvious over Andric in view of Zeiter and the Mallol publication, and further in view of US 6,402,888 to Doublet et al. (“Doublet”).

Reconsideration and withdrawal of the rejections is respectfully requested.

As discussed at the interview, Zeiter discloses a transparent sheet with printed indicia on both sides that form a cross when observed at a normal angle, but whose appearance is modified as the observation angle varies, because the lines on the reverse side seem to “move” due to the changing viewing angle, which results in the “3D moiré” interference pattern when the observation angle varies. Thus, (1) Zeiter uses a transparent sheet to make both parts of the crosses visible from the viewing side, and (2) the “3D moiré” effect of Zeiter is due to the depth difference between the lines on the front and on the reverse side, which make the lines on the reverse side seem to “move” when the viewing angle changes, due to the thickness of the substrate, which constitutes the “3D moiré” effect of Zeiter.

In other words, in Zeiter, the 3D effect is created by the actual depth difference of the indicia printed on both sides of the transparent sheet. This depth difference is not perceived when observed from a fixed viewing angle (the indicia look like crosses when seen at a normal

angle), but it is perceived when the observation angle changes because the pattern changes. This is why Zeiter calls its pattern a “three dimensional moiré pattern” (page 3, lines 17-18), i.e., created by the actual depth difference between indicia, as opposed to “two dimensional images” of traditional “moiré patterns” which are created by “displacing two immediately overlapping patterns” (page 3, lines 6-8), i.e., created by moving indicia that are practically at the same depth when viewed by the observer.

In contrast, in the presently claimed invention, (1) the authentication method is based on an observation of the difference between the view in reflected light (only the set of lines on the viewing side is visible) and the view in transmitted light (both sets of lines are visible), and (2) the 3D effect is not dependent on the apparent depth position of the indicia when viewed by the observer, but it is a “relief or volume” effect created by the planar arrangement of lines when observed from a fixed angle, as recited in present claim 1. Thus, the 3D effect is visible at a fixed viewing angle, because it results from the arrangement of lines along the directions of the main plane of the sheet (X and Y directions), i.e., the 3D effect is not related to the depth arrangement of the lines (Z direction).

The specificity of the relief or volume effect of the lines in the presently claimed invention is illustrated in particular with the second embodiment in which the lines at the front and reverse side are identical and superposed (as described on page 4, lines 1-3 of the present specification). In this example, the lines on the reverse side are in exact registration with the lines on the front side, i.e., the 3D effect observed from the front side is created by the planar arrangement of the lines on the front side only. In another embodiment with a portion of the

lines to form the image on the front side and the complementary portion of the lines to form the image on the reverse side (as described on page 3, lines 27-30, for example), i.e., the image is not complete with a single set of lines, but the 3D effect of the image observed when both sets of lines are seen in transmitted light is also created by the planar arrangement of the lines.

Thus, in the presently claimed invention, only one of the two sets of lines is visible in reflected light. Authentication results from an observation in transmitted light, which confirms whether the lines on the front side (visible in reflected light) and the lines on the reverse side (not visible in reflected light, but visible in transmitted light) are in perfect registration or not. The fact that the image includes a 3D effect created by the planar arrangement of the lines makes it considerably easier to detect a defect in the registration of the lines, i.e., a sign that the document is counterfeit, because a jumbled relief or volume effect due to imperfect registration (for example, if a counterfeit document has been obtained by two-sided photocopying) will be more easily detected by simple observation in transmitted light.

The features of the presently claimed invention are not taught or suggested in Zeiter, which relies on a transparent substrate and in depth difference to make the pattern change when the viewing angle changes, instead of perfect registration and 3D effect created by planar arrangement of lines. Further, the other references fail to remedy the deficiencies of Zeiter. Therefore, the present claims are not obvious over the cited references taken alone or in any combination.

In addition, with respect to the dependent claims, it is submitted that the combined features of each of the dependent claims are not taught or suggested in the cited references taken alone or in any combination.

In particular, with respect to claim 2, it is submitted that Zeiter does not have lines of varying number density or printing density, let alone a suggestion to use such variations to create a relief or volume effect in an image.

With respect to claims 28-29, it is submitted that Zeiter does not have complementing indicia on both sides, let alone this combination forming an image with 3D effect.

With respect to claims 30-31, it is submitted that, although Zeiter has perfectly superposed indicia, these indicia do not form a 3D effect in reflected light.

Further, the other cited references fail to remedy the deficiencies of Zeiter.

Therefore, each of the dependent claims, and in particular each of claims 2 and 28-31 is not obvious over Zeiter taken alone or in any combination with the other cited references.

In view of the above, it is submitted that the rejections should be withdrawn.

#### Conclusion

In conclusion, the invention as presently claimed is patentable. It is believed that the claims are in allowable condition and a notice to that effect is earnestly requested.

If there is, in the Examiner's opinion, any outstanding issue and such issue may be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Amendment under 37 C.F.R. §1.111  
Application No. **10/521,555**  
Attorney Docket No. **052014**

If this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of the response period. Please charge the fee for such extension and any other fees which may be required to Deposit Account No. 50-2866.

Respectfully submitted,  
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